CLAIMS

What I claim as my invention is:

1 The Facer Beam Barrier System, wherein the improvement comprises:

a) a plurality of manufactured, identical, elongated, super-ordinate, breech and chamber, facer beams, spaced in adjacent lateral segments, and

b) said beams, configured as rectangular box ⌐¬-beams, each having 2 side webs, and a front (or top) face with an open back, and said box beams having an identical, symmetrical, aligned, series of machined openings, machined through each web portion, and

c) a plurality of elongated ratiocinative, rectangular, subordinate beams, said subordinate beams passing through said super-ordinate beam openings, in a transverse series, and

d) said openings providing an interlock-able intersection for said subordinate beams; and further said openings are each identically preformed in an irregular pentagon shape therein providing "breech and chambers" for said subordinate beams, and

e) a plurality of said breech and chamber openings in a symmetrical series, said breech calculated and dimensioned for free transverse passage of said subordinate beams, said breech portion of said openings dimensioned and machined marginally larger than the cross-sectional parameters of said subordinate beams and said breech elongated in order to house one said subordinate beam within said chamber and still allow a second said subordinate beam to pass freely through said breech and further

f) said series of openings having a front/face chamber wall and a back chamber wall parallel with said front/face chamber wall, said front/face wall is located and machined, a dimension, from said front (or top) of said box beam, said dimension assimilating the thickness of said modular facer, also said chambers preformed, assimilating and machined, a dimension, from front/face chamber wall to back chamber wall, marginally smaller than the width of said elongated subordinate beams, thus said dimension engineered to cramp single subordinate beams or overlapping (double) subordinate beams, installed one at a time, within

said chamber, when said subordinate beams are systematically manipulated 90 degree's from said breech into said chamber, and

g) at least one modular facer, inserted and secured firmly on the same face plane as, and between, said adjacent super-ordinate beams, with said facers elongated butt edges, butted tightly against said webs of said adjacent super-ordinate beams, and said facer is aligned with the face of said super-ordinate beam inventively offering a two dimensional extent of zero curvature, otherwise providing a continuous flat and uninterrupted plane, and

h) the resulting composite thus providing a sub-rigid barrier.

2 The Facer Beam Barrier System of claim 1, wherein improvements, to said super-ordinate beams comprise;

a) at least one hole in each web of said box beam, said hole being positioned a distance from said front (or top) of said box beam that is half the thickness of said facer, said hole being a diameter sufficient to allow a fastener to be inserted into said elongated butt edge of said facer without rupturing the thickness of said facer, and

b) said fastener to be a permanent appurtenance to said super-ordinate box beam, said fastener capable of being inserted through said hole, and into the center of said facers elongated butt edge, by manipulation thereby interlocking said facer within the plane of the face of said super-ordinate beam, further said facer is fastened against said subordinate beams and between said super-ordinate beams in a sub-rigid manner without the inclusion of separate or disposable fasteners, and

c) said appurtenance with a retraction device, said retraction device being devised to retract said fastener by means of manipulation, said retraction device capable of securing said fastener in a retracted position that securely confines said fastener within the inner box structure of said super-ordinate beam when said beam is not in use and further

3 The Facer Beam Barrier System of claim 2, wherein improvements, to said super-ordinate beam comprise;

a) said super-ordinate box beams to have a bottom plate and a top plate permanently attached to said super-ordinate beam, said plates nominated as multi-functional end plates, said plates fabricated of material that is ratiocinative with the material used to fabricate said box beams, said plates machined to a size that fits snugly inside the rectangular box ⌐¬-beam shape, said plates to be permanently attached to said box beams by means of welding or other standard method of permanent attachment, and

b) said bottom plate fabricated with a step up that assimilates the size of said subordinate beams, said step up in said plate to be directly in line and symmetrical with said breech and chamber openings, said step up being fabricated into said bottom plate for the purpose of bridging the bottom, of said super-ordinate beam, over a shoe, said shoe being the same size as said subordinate beams while said shoe remains a separate application, said shoe is generally used in vertical barrier construction in order to align said barrier on a predetermined construction line and also in order to offer an alternate fastening point where said bridged beam may seat tightly thus holding said barrier to said predetermined line, and

c) said bottom plate fabricated to step down, to the bottom of beam length, behind said step up at said shoe, said step down in said bottom plate to provide a flat surface, said flat surface affording a contact surface for said top plate, said surface having at least one bolt sized hole to match at least one similar hole in said top plate, said bolt sized holes machined to align exactly when one super-ordinate beam is placed atop and in line with another super-ordinate beam for the purpose of extending the height or length of a Fast-Form Barrier, and

d) said bottom plate with a machined slot in the portion of plate that bridges and sits atop said shoe, said slot may be a width that assimilates the thickness of said top and bottom plates, said slot is further machined to snugly receive an extended portion of said top plate when said bottom plate is set on and in line with said top plate extended portion, said extended portion having a machined hole through it for a purpose of receiving a retention pin and

e) said bottom plate fabricated with a permanently fixed appurtenance above and in line with said slot, said appurtenance to comprise a barrel and a slide retention pin, said slide pin machined a diameter size that is marginally smaller

than said machined hole in said top plate extension, said slide pin to be maneuverable in said slot by means of an affixed guide pin, said guide pin maneuverable only within the confines of a machined slot in said barrel, said slot machined slightly wider than the diameter of said guide pin, said barrel with guide pin slot and said guide pin are fabricated and attached to said bottom plate in a manner that allows the slide pin to be guided in or out of said hole in said top plate extension when two beams are aligned and attached bottom of one beam to the top of a second beam, and

f) said bottom plate functioning as a beam extension attachment with a self-contained means of retention, and

g) said slot functioning as a quick and exact alignment method each time identical super-ordinate beams are joined at the ends, and

h) said bottom plate further functioning as a method of bolting an extended super-ordinate beam in place, and

i) said bottom plate also functioning as a bridge over said shoe, and

j) a nut, welded on the inside surface of said bottom plate, and said nut is aligned with said hole at said step down in said bottom plate, and when a bolt is threaded through said welded nut, from the inside of said super-ordinate beam, and threaded down against whatever foundation is supporting the base of said barrier, said bottom plate may be partially raised, thus changing the vertical alignment of said beam and said barriers, thus functioning as a plumbing device that allows the user to adjust the vertical line of said super-ordinate beam, and further

k) said top plate fabricated with said fixed extension portion, said extension portion being made of plate similar to said top and bottom plates, said extension plate being capable of acting as a multi-purpose appurtenance thus adding function to said top plate, and thus providing a function, being the attachment of two beams together, in order to create one extended beam, and further

4 The Facer Beam Barrier System of claim 3, wherein improvements, to said super-ordinate beam, intended primarily for concrete formwork, comprise;

a) said facer beam having a self contained tie assembly, wherein one or more tie holes are machined through the face of said super-ordinate beams, said tie

holes machined for the purpose of using said barrier as a concrete form mold, said mold assembled when two barriers are erected in a face to face spaced apart manner, and said tie holes are in alignment, and tie bolts are installed through said tie holes and said tie bolts are attached within and too said face to face super-ordinate beams, said through bolt attachments are engineered to support whatever amount of liquid concrete is placed within said mold, and

b) said through bolt retainers, prefabricated and preinstalled as fixed appurtenances and said through bolt assembly's are engineered to function in concert with a nut and washer as part of said assembly, said form tie assembly engineered to be housed within said parameters of said super-ordinate beam, and said tie assembly, housed behind said tie hole machined through the face of said super-ordinate beam, and said housing further comprised of pipe nipples fixed by weld or other means to the inside of said webs of said box beams, the center of said pipe nipples to be on the same centerline axis as said tie hole, said pipe nipples to have an inside diameter marginally larger than the size of a tie bolt retention pipe, said pipe nipples each to be a length that is 1/3 or less the distance between the inside faces said box beam webs, said pipe nipples to be positioned generally toward the rear of the interior of said box beam and welded or permanently fixed to said inside of said webs, with said welds being applied around the outside circumference of said nipples, thus providing,

c) a housing for said tie bolt retention pipe, said retention pipe inventively assuming the function of a standard flat washer, said retention pipe having an outside diameter that is marginally less than the inside diameter of said nipples, said pipe to be installed in said nipples prior to welding said nipples inside said webs, or alternatively said webs may be holed at said nipples, said hole to align with and assimilate the inside diameter of said nipples, thereby allowing said retention pipe to be installed from the outside of said box beam, and through said hole through said web, at and into said nipples, and further,

d) said retention pipe fabricated to a length that assimilates the distance between said webs of said box beam, and further said retention pipe is machined with a centered hole through both sides of said pipe, said hole through both sides of said pipe to be a diameter that matches said tie hole machined through said face of said super-ordinate beams, and

e) said retention pipe inventively equipped with a nut that fits snugly in the interior of said pipe and in line with said centered holes through both sides, and therefore when a tie bolt is introduced to said retention pipe, said tie bolt may be threaded through said retention pipe thus engaging and threading through said nut fit snugly in the interior of said pipe, and

f) a plurality of tie bolts are threaded through a plurality of said retention pipes and attached as said through bolt assembly within and between said face to face barriers thus a mold for concrete is completed, and

g) said tie bolts are retracted following concrete, placement and solidification, said retention pipes may be rotated within said nipples and said tie bolt may be stored and retained within said super-ordinate box beam, and said through bolt will be stored inside of and parallel with said web sides of said super-ordinate box beam thus providing a self-contained form tie assembly.

5 The Facer Beam Barrier System of claim 4, wherein improvements, to said super-ordinate beam, intended primarily for concrete formwork, comprise;

a) a self-contained collapsible staging bracket, needed when assembly of the Facer Beam Barrier System is above mans reach and said bracket has a staging arm extending 90 degree's from the open back of and perpendicular to said box beams, said staging arm supporting a railing arm that stands vertical and 90 degrees up from said staging arm, said railing arm being vertical with said box beams when said staging bracket is in working position, said staging arm offering support for staging planks and said railing arm offering support for railings, and

b) said staging arm, temporarily or permanently, attached and housed within said box beam by means of a retention bolt that passes through a hole in said staging arm, said hole to be compatible with said bolt in order that said arm is free to rotate on said bolt, said bolt is secured to said box beam by passing through said webs and retained by the bolt head outside of one web and with a nut on the outside of the opposing web or said bolt may be, located, aligned, and welded to the opposing inside face of webs of said box beam, said staging bracket generally located toward the top of said box beams, with said bolt, in said box beam, penetrating said hole in said staging arm, thereby the attached to

beam end of said staging arm being the opposite end from said railing arm attachment, said bolt allows said arm to rotate on said bolt while said staging arm reaches inside said box beam to a point just short enough of said inside front face of said beam to allow said staging arm to rotate without hitting said inside face, and further

c) a plate added in front of and above said staging retention bolt, said plate extends from the inside face of said box beam to the midpoint of said box beam, said plate having a top and bottom side and four edge sides, said top side facing up to the top of beam and said bottom facing the ground, said top and bottom sides perpendicular to the back side of the elongated face of said box beam, with one edge side of said plate attached to said back side of the elongated face of beam, and one of said edges attached to and against the left inside of web of said box beam, said plate extending from front face approximately half the distance to the back of beam and extending from its attachment on said left side approximately half the distance to the opposing inside wall of the right side-web, when viewing said box beam from the rear/open side,

d) therefore when said beam attached end of said staging arm is manipulated perpendicular with said beam and maneuvered under said plate, the beam-end/top-side of said arm makes contact with the underside of said plate, thereby said plate retains said arm in an extended, cantilevered, fixed position on said retention bolt and subsequently said staging arm may be manipulated by sliding said staging arm, over and along said retention bolt, to the right side of said box beam and away from said plate, and when said staging arm, boxed end, is free from said plate said arm may be rotated, on said retention bolt, 90 degrees downward, whereby it will be in line with the length of said box beam and thus resting within said box beam and further

e) a mechanism, engineered and applied, that allows said railing arm to rotate up and away from said staging arm on a bolt that is attached to said staging arm, said bolt includes a head, said railing arm has a short channel machined into it for engagement with said bolt and said bolt head retains as said bolt guides said railing arm along said bolt, said channel includes an extruded wedge mechanism at and around its end point, and when said railing arm rotates up to its working position, said channel allows it to slide down and along said bolt attached to said

staging arm, and said channel includes an offset which guides said railing arm down over said wedge mechanism whereby said wedge offers a locking device as said bolt guides said arm up and sideways and thus seats said railing arm against a depressed shoulder machined into said staging arm, said seat perfectly situates said railing arm in a perpendicular and locked position, said locking device is engineered to allow said railing arm to be easily unlocked, by forcing said railing arm off said wedge and pin and unseating said railing arm from said staging arm and rotating said arms into parallel alignment when said staging arm, therefore

f) when said staging arm is released from said cantilevered position and said railing arm is unlocked and unseated from said staging arm, both arms compactly and systematically fold together and drop into said super-ordinate beam for storage in said resting position,

g) thus a self contained staging and railing support apparatus for a vertical form system is provided

6 The Facer Beam Barrier System of claim 5 wherein an improvement comprises;

a) two of said barriers placed in a face to face situation with said self-contained tie system, of opposing barriers, being connected to one another in order to provide a form/mold for concrete and

b) said facer fastening system employed and

c) said multi-functional bottom plate being employed to plumb said barriers of said form and

d) said self-contained collapsible staging bracket being employed for the purpose of supporting a work platform for people placing concrete within said formwork and

e) bulkheads being placed at the ends and between said opposing barriers, therefore

f) providing a formwork for concrete system with a super-ordinate self-contained facer beam inventively controlling the entire assembly with said form system having the ability to be extended vertically or horizontally in an infinite composition.

7 The super-ordinate box beams, of the Facer Beam Barrier System of claim 6 wherein an alternative improvement comprises;

a) an alternative method of the self contained tie assembly, wherein said retention pipe is not equipped with a nut that fits snugly in the interior of said pipe and in line with said hole through both sides of said pipe, and

b) said tie bolt, in said retention pipe, is allowed to run freely through said retention pipe,

c) said tie bolt, with said back nut, rotated into a workable tie bolt assembly, and

d) said tie bolt, with back nut, rotated into a storage position inside of said web portions of said super-ordinate beam, and

e) a self-contained form tie assembly is provided.

8 The super-ordinate box beams, of the Facer Beam Barrier System of claim 6 wherein an alternative improvement comprises;

a) the self contained tie assembly, replaces, said nipples that receive said retention pipes, with guide bars that allow said retention pipe to travel up and down within said guide bars and within said box beam webs, and said guide bars are running parallel with said face of beam and said guide bars assimilating said nipples in their depth and distance from face of beam, thus allowing said tie bolt retention assembly to travel up and down or back and forth within said guide bars therefore said tie may be angled through said hole in said box beam face, and

b) said retention pipe reduced in length to a measurement marginally more than two thirds of the distance between said webs of said box beam thus allowing said retention pipe to freely move side to side within said guide bars, thus allowing said tie bolt retention assembly to be angled, through said hole in said box beam face, in a side to side manner, and

c) said self contained tie assembly system functioning with tie bolts having the ability to angle in any direction when passing through said hole in said super-ordinate box beam face.

9 The super-ordinate box beams, of the Facer Beam Barrier System of claim 6 wherein an improvement comprises said tie assembly system of claim 6

alternatively employing a flat washer at the back of said beam in place of said retention pipe.

10 The Facer Beam Barrier System according to claim 1, wherein an improvement comprises said series of breech and chamber openings, in said super-ordinate beams, may be machined in alternative forms provided said forms conform to the essence of the invention, said forms may appear as 4 sided, or 6 sided or in other shapes as long as they serve as a breech and chamber.

11 The Facer Beam Barrier System of claim 3 wherein an improvement comprises building a house, wherein the top plate, with said extension plate, with said retention pin-hole, being used as an attachment point for an intersection of,

a) a flooring beam, said flooring beam being said super-ordinate beam, and
b) a rafter beam, said rafter beam being said super-ordinate beam.
c) a crane hook, to pick the walls of said house up and set them in place prior to attaching said rafter beam.

12 A Facer Beam Barrier System according to claim 6, wherein an improvement comprises said super-ordinate beams assembled horizontally with said subordinate beams interlocked in a vertical position.

13 The Facer Beam Barrier System fabricated according to claim 3, wherein an improvement comprises said barriers arranged and joined together as a scale model sub-rigid building that may be implemented as a model or toy house or the like.

14 The Form Tie Assemblies of claim 6 wherein an improvement comprises said form tie assemblies being fixed between any 2 beams or any 2 webs and used as a generic rotating self contained tie assembly for concrete formwork.

15 The Facer Beam Barrier System of Claim 6 wherein an improvement comprises said super-ordinate beams arranged in lateral segments that follow a radius with subordinate beams reduced in size in order to be ratiocinative with said breech

and chamber openings as said super-ordinate beams angle away from the line that said subordinate beam is chambered on, as said radius creates a segmented form application.

16 The subordinate beams of The Facer Beam Barrier System of Claim 1, wherein an improvement in retaining said facer comprises;

a) said subordinate beams machined with a series elongated penetrations through the flat elongated surface side of said beams, said penetrations to be centered on said flat side and said penetrations to be a ratiocinative width dimension, said penetrations to be a ratiocinative length dimension, said penetrations have a space between them, said space to be a ratiocinative dimension that does not diminish the beams strength beyond its intended purpose, and

b) said series of penetrations in said subordinate beams thus running perpendicular to said super-ordinate beams when said subordinate beams are locked within said chamber in the composition of said barrier, therefore

a) Unique wedges may be employed with said penetrations, said wedges manufactured by selecting a rectangular piece of material the same composition as or stronger than the material composition of said subordinate beams, said rectangular material machined to a thickness marginally less than the width of said penetrations, said rectangular material machined to a width determinably longer than the length of said penetrations, said rectangular material machined a length at least double said width of said rectangular material, said rectangular material further deformed by slitting a flat side from one corner across the center point to the opposing corner thus providing two wedge shaped pieces, said wedge shaped pieces thus providing unique wedges to be employed with said penetrations, and

b) Furthermore said penetrations running perpendicular with said super-ordinate beams are of a frequency that provides a penetration on either side of said super-ordinate beam,

c) Therefore when said wedges are strategically inserted into said penetrations, said wedges may be forced down thus wedged against said side web of said

super-ordinate beam thus forcing said super-ordinate beam a desired dimension to the right or left of said super-ordinate beams chambered location,

d) Consequently lateral super-ordinate beams may be forced toward one another with said wedges inserted into said penetrations in said subordinate beams,

e) Therefore when a facer is between said lateral super-ordinate beams and said wedges are inserted in said penetrations along the outer sides and parallel with and against said lateral super-ordinate beams, said facer may be compressed between said super-ordinate beams and thus fastened in a flat plan with said super-ordinate beam face.

f) Furthermore when a barrier is formed with three or more lateral super-ordinate beams with two or more facers in place and opposing wedges are inserted at the outer sides of the beams at each end of said barrier, said barrier may be compressed from side to side thus providing added rigidity while maintaining a sub-rigid composition.

17 The super-ordinate beams of The Facer Beam Barrier System of Claim 1, wherein an improvement comprises;

a) said super-ordinate beams strategically deformed in a manner, that creates an obtuse angle, where said side-webs previously bend 90 degrees back from said super-ordinate beam face, said obtuse angle traveling away from said beam face a dimension assimilating the depth of said facer panel at which point said chamber wall begins, at said chamber wall said side-web is further deformed to bend back to 90 degrees with said facer panel,

g) said elongated butt edges of said facer strategically deformed to fit said obtuse angle strategically deformed into said side-webs of said super-ordinate beams when said facer panels are seated against said subordinate beams,

h) said strategically deformed facer panel sheathed and arrested within and against said strategically deformed super-ordinate beam in the composition of said Facer Beam Barrier System.

18 The super-ordinate beams of The Facer Beam Barrier System of Claim 6, wherein an improvement comprises using said self-contained multi-functional facer beam, as a two-way tie retainer beam, for a column form, by providing;

a) two opposing column sides with said super-ordinate beams laterally spaced apart, a dimension that amounts to the width of one finished column side, plus the thickness of two facer panels, plus the width of two subordinate beams, and held in this spaced apart location by inserting and chambering standard subordinate beams, subsequently

b) said plywood is centered on said standard subordinate beams that systematically divide said lateral super-ordinate beams and said plywood is attached to said subordinate beams with conventional fasteners such as nails, and further

c) two opposite and self-opposing column sides comprise facer panels, conventionally fastened to un-chambered subordinate beams, that are extended beyond said facers edges a dimension equal to at least twice the width of said subordinate beams, and further

d) said un-chambered subordinate beams, with facer attached, may be lapped over said standard subordinate beams and manipulated back against the sides of said laterally spaced apart super-ordinate beams, and further

e) this composition may be held together by engaging top and bottom tie assemblies of face to face super-ordinate beams and adding alternative top and bottom tie assemblies through the sides of said laterally spaced apart super-ordinate beams, whereas said super-ordinate beams are manufactured with a pattern of extra side-web holes for such purposes, and

f) said alternative tie assemblies composed of standard bolts, nuts, and plate washers and said tie assemblies providing continuous ties around said column form at the top and bottom

19 The Facer Beam Barrier System according to claim 1, wherein an improvement comprises said series of breech and chamber openings machined in any super-ordinate beam that conforms to the essence of the invention.

20 The Facer Beam Barrier System of Claim 6 wherein an improvement comprises said overlapping subordinate beams overlapped and interlocked together within said breech and chamber openings and also overlapped with independent fasteners;

a) at an inside corner,

c) at an outside corner,

d) within said breech and chamber opening,

e) at a column corner.